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PATENT



SPECIFICATION

Application Date, Nov. 29, 1918. No. 19,764/18.

" " Dec. 9, 1918. No. 20,429/18.

One Complete Specification Left, May 23, 1919.

Complete Accepted, July 17, 1919.

PROVISIONAL SPECIFICATION.

No. 19,764, A.D. 1918.

Improvements in Brewing.

I, HARRY BOYS WOOLDRIDGE, of Tottenham Brewery, Tottenham, in the County of Middlesex, Brewer, do hereby declare the nature of this invention to be as follows:—

This invention relates to improvements in brewing.

- 5 According to this invention, I run the wort from the mash tun into an air-tight receiving vessel which is jacketed, and inside the vessel is an open ended pipe which rises up above the level of the wort in the vessel; and at the top is bent over so that the upper end of the pipe which is above the level of the wort delivers any liquid passing up the pipe back into the body of the liquid. An
- 10 air nozzle extends into the lower opening of the pipe, which nozzle is supplied with compressed sterilized air by a pipe extending outside the vessel, and to the upper or delivery end of the pipe is attached a distributor, which may be a mushroom shaped plate; this plate may be corrugated and it may be jacketed. When the wort has been run into the receiving vessel from the mash tun steam
- 15 is admitted into the jacket and the wort is raised to about 110° C. and maintained there for the necessary time; the temperature is then allowed to fall and the receiving vessel is connected to a vacuum pump and cold brine is admitted into the jackets of the vessel and of the distributor and compressed sterilized air is admitted to the nozzle. By the action of the vacuum and the compressed
- 20 air the liquid rises in the pipe and flows out on to the distributor. When the pressure in the vessel by the admission of air becomes equal to that of the atmosphere a valve is opened and the liquid continues to flow up the pipe under the action of the compressed air. A circulation of the liquid is thus maintained in the vessel and at the same time the wort is aerated.

- 25 Dated the 28th day of November, 1918.

H. B. WOOLDRIDGE.

[Price 6d.]

PROVISIONAL SPECIFICATION.

No. 20,429, A.D. 1918.

Improvements in Brewing.

I, HARRY BOYS WOOLDRIDGE, of Tottenham Brewery, Tottenham, in the County of Middlesex, Brewer, do hereby declare the nature of this invention to be as follows:—

This invention relates to a brewing process in which the hops are boiled under pressure, and is especially applicable to the process described in my Specification No. 19,764 of 1918.

In the process described in that specification the wort from the mash tun is run into an airtight receiving vessel containing the hops. Steam is admitted into the jacket of the vessel, thereby raising the temperature of the wort. When the pressure has reached a certain point a vent is opened at the top of the vessel in order to encourage ebullition, thereby agitating the hops.

According to the present invention, I collect and condense the vapours given off at the vent in a vessel, the vapours being cooled by being passed through a coil before they reach the vessel, or they are cooled in the vessel, which, in this case, is provided with a coil. The condensed vapours are allowed to settle and the oils from the hops float at the top of the condensed water, whilst at the bottom of the vessel is deposited matter containing the bitter properties of the hops. I collect the oils and the deposited matter and return them to the receiving vessel, after running the condensed water if desired to waste or to some other vessel for further use.

Dated the 9th day of December, 1918.

CARPMAELS, RANSFORD & NEWTON,
Agents for Applicant,
24, Southampton Buildings, London, W.C. 2.

COMPLETE SPECIFICATION.

Improvements in Brewing.

I, HARRY BOYS WOOLDRIDGE, of Tottenham Brewery, Tottenham, in the County of Middlesex, Brewer, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to improvements in brewing.

According to this invention I run the wort from the mash tun into an airtight receiving vessel which is jacketed or felted with internal coils and inside the vessel is an open ended pipe which rises up above the level of the wort in the vessel, and at the top is bent over so that the upper end of the pipe which is

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above the level of the wort delivers any liquid passing up the pipe back into the body of the liquid. An air nozzle extends into the lower opening of the pipe, which nozzle is supplied with compressed sterilized air or other suitable gas by a pipe extending outside the vessel, and to the upper or delivery end of the pipe is attached a distributor, which may be a mushroom shaped plate; this plate may be corrugated and it may be jacketed.

Hops are placed in the receiving vessel and the wort is run into it from the mash tun, steam is then admitted into the jacket and the wort is raised to about 110° C. and maintained there for the necessary time; a vent is opened at the top of the vessel in order to encourage ebullition, thereby agitating the hops.

I collect and condense the vapours given off at the vent above mentioned, the vapours being cooled by being passed through a coil before they reach the vessel, or they are cooled in the vessel which in this case is provided with a coil. The condensed vapours are allowed to settle and the oils from the hops float at the top of the condensed water, whilst at the bottom of the vessel is deposited matter containing the bitter properties of the hops. I collect the oils and the deposited matter and return them to the receiving vessel after running the condensed water if desired to waste or to some other vessel for further use.

The temperature is then allowed to fall to about 100° C. and the receiving vessel is connected to a vacuum pump. When the temperature of the wort has been sufficiently reduced, cold brine may be admitted into the distributor and sterilized air or gas to the nozzle by opening a valve. The liquid in the vessel then rises in the pipe and flows out on to the distributor and the liquid continues to flow up the pipe under the action of the sterilized air or gas. A circulation of the liquid is thus maintained in the vessel and at the same time the wort is aerated.

The annexed drawing shows an apparatus for carrying out the above described process, and is an elevation partly in section.

A is the receiving vessel having a wort inlet B and a jacket C into which steam is introduced through the pipe D and passes out through the pipe E, a part of the vessel A also being provided with a jacket F having an inlet G for cold water or brine and an outlet H. I is an open ended pipe which is bent over and to the bent over end is attached a distributor J. The nozzle K to which air is supplied by a pipe L extends into the pipe I. The vessel A is connected to a vacuum pump through the pipe M. N is a vent at the top of the receiving vessel A, leading to the pipe O and to the coil P in the cooling vessel Q. The coil P is connected to the depositing vessel R provided with a tap S for drawing off oils, taps T T for drawing off water and a pipe V through which deposited matter may be forced into the receiving vessel A. The receiving vessel is provided with manholes W, a safety valve X, a gauge glass Y and a thermometer Z.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. In a process of brewing, first running the wort into a vessel containing hops and heating the same, and after the wort has been sufficiently heated, opening the vessel to a vacuum pump and circulating the wort by means of air delivered to the bottom of a pipe, the wort rising in the pipe and issuing from the top of the same above the level of the wort in the vessel, substantially as described.

2. In a process as claimed in Claim 1, when heating the wort assisting ebullition by opening a vent and collecting and condensing the vapours given off:

3. In a vessel for heating wort, a pipe having a bent over end an air nozzle

entering the bottom of the pipe and a distributor on the bent over end, substantially as described.

4. A vessel as claimed in Claim 3 combined with a collecting vessel for the condensed vapours, substantially as described.

5. The process of brewing substantially as described.

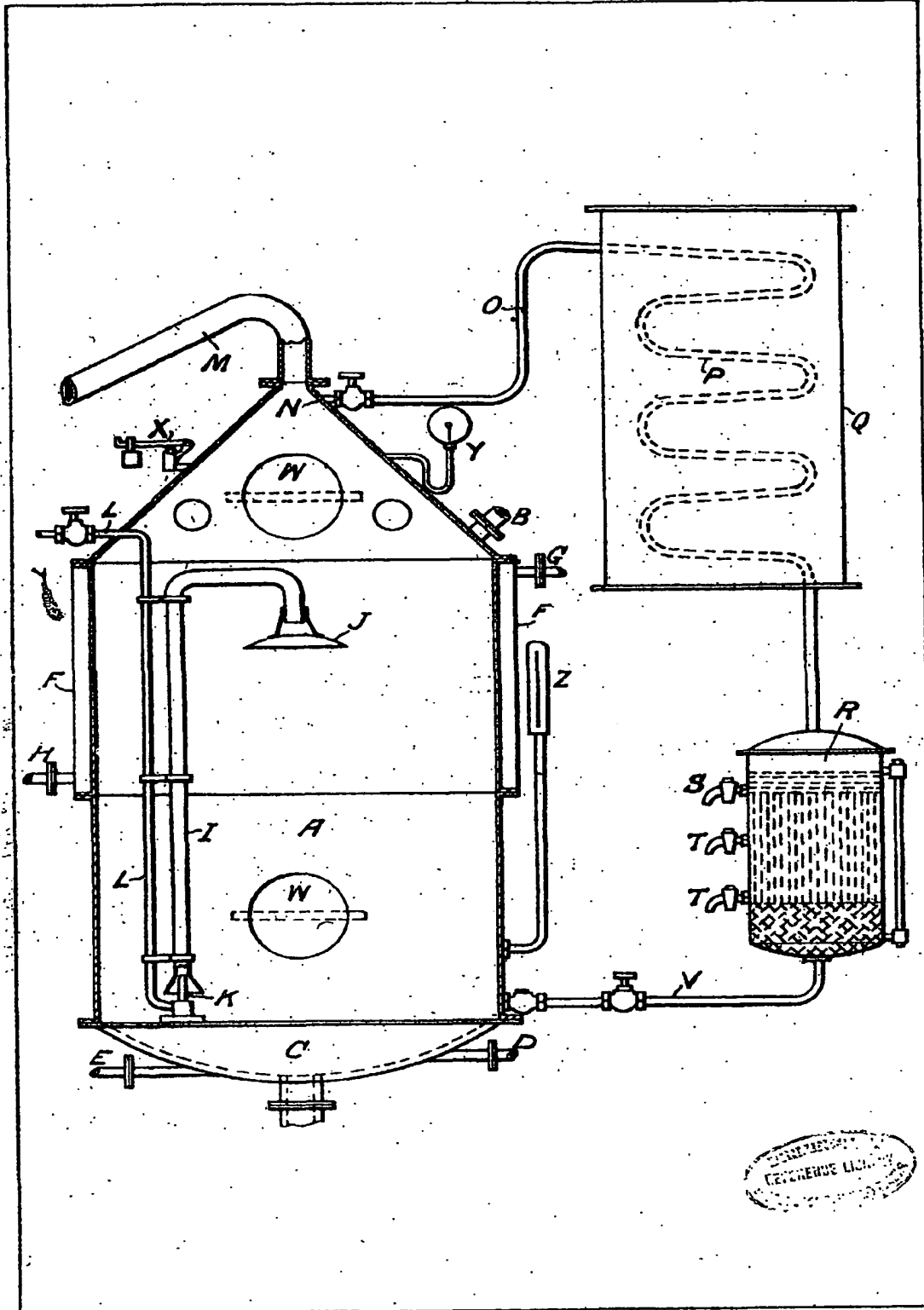
6. Apparatus for use in brewing substantially as described and illustrated in the drawings. 5

Dated the 23rd day of May, 1919.

CARPMAELS, RANSFORD & NEWTON,
Agents for the Applicant,
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Redhill: Printed for His Majesty's Stationery Office, by Love & Malcomson, Ltd.—1919.

[This Drawing is a reproduction of the Original on a reduced scale.]



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